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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter Of:	)	
	)	GEN Docket No. 90-314
Amendment of the Commission's	)	ET Docket No. 92-100
Rules to Establish New Personal	)	
Communications Services	)	

COMMENTS OF TIA MCD

The Mobile Communications Division (MCD) of the Telecommunications Industry Association (TIA) herewith submits its comments in the above-captioned proceedings concerning new Personal Communications Services ("PCS"). TIA MCD member manufacturers supply wireless communications products to the global market.

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I. INTRODUCTION

TIA believes the Commission's recent allocation of 220 MHz of spectrum in the 2 GHz band for emerging mobile technologies and the related instant Notice of Proposed Rulemaking to define rules for Personal Communications Services (PCS) are the most significant issues addressed in the last decade. Accordingly, in addition to participating in the rulemaking with these comments, TIA is planning a PCS seminar for November 19 and 20, including representatives from both the PCS and fixed microwave community.

As noted in more detail below, the proposed 1.8 GHz PCS allocation presents a unique challenge as the spectrum is already heavily used for fixed microwave in many areas. TIA membership encompasses both PCS and fixed microwave interests. Therefore, TIA is in a unique position to offer an industry forum in which to discuss methods of jumpstarting PCS while ensuring that the critical communications requirements of fixed microwave users continue to be met.

The last action of comparable importance allocating spectrum and defining service rules for 800 MHz band cellular and trunked systems occurred in the late 1970's and early 1980's in Docket 18262. Those allocations supported the development of new mobile communications systems which continue to enhance domestic productivity and serve as a springboard for export of U.S. technologies, systems, and knowhow. However, we cannot take these benefits for granted. TIA fully supports

the Commission's recent actions to allocate 220 MHz of spectrum for Emerging Mobile Technologies and to move forward proposing a subset of that allocation and service rules for PCS.

As a result of the previous allocations, the communications marketplace matured significantly over the past 15 years and paradigm shifts are rapidly taking place. Workers have come to require high quality untethered, as well as wired communications systems. Wireless usage, traditionally vehicular, is increasingly pedestrian in nature. Over 50% of cellular subscriber sales in the U.S. today are for portable units. In some other countries where systems initially were designed with pedestrian coverage in mind and/or where telephone lines are at a premium, the proportion of portable units reaches from 60 to 90 %.

Communications requirements are also expanding from primarily voice-only to voice, data, and imaging, requiring that PCS regulations embody sufficient flexibility to allow multiple service offerings. Finally, as these technologies and services have increasingly become an everyday part of business life, the public has begun to realize the personal benefits wireless communications can offer in general consumer applications as well. More and more, the paradigm is shifting from business-only to both business and personal use. However, realizing the full potential of the personal consumer market will require that both airtime service charges and product costs be minimized.

The Commission has stated four key goals which will guide its ultimate regulatory decisions for PCS. These goals are 1) universality - the users' ability to roam across multiple providers and different areas with the same subscriber unit; 2) speed of deployment - getting service to the public in the most expeditious manner possible; 3) service diversity - offering users multiple classes of service; and 4) competitive delivery - offering users lower airtime charges for both new and existing public wireless systems.

TIA concurs with these goals, but recognizes that the optimum regulatory structure to reach one goal may not be the best approach to met others. Therefore, the Commission must develop final regulations which strive to balance these four attributes for PCS. TIA's comments provide direction toward that result. TIA believes the Commission can be most effective in ensuring speed of deployment by moving forward to finalize rules and grant licenses for PCS as quickly as possible.

While the Emerging Technology and PCS decisions may hold the promise of even greater significance for the mobile community than previous actions in Docket 18262, the challenges are markedly different in several aspects. First, industry mechanisms to ensure universality for the user must be developed in an atmosphere of more rapid technology advancements and the desire for "technology neutral" regulation. These factors impact the process of developing PCS common air interface(s).

Second, most of the spectrum proposed for PCS is heavily used by incumbent microwave licensees. Given this environment, the amount of spectrum awarded to each PCS licensee has definite implications on the ability to initiate service expeditiously through sharing.

Third, the Commission is clearly relying heavily on PCS to provide increased competition to mature mobile services such as cellular in the hopes that doing so will make wireless communication services more affordable to a larger segment of the population. This factor also impacts the need to award new providers sufficient spectrum to offer both vehicular and pedestrian coverage and existing providers additional spectrum to supplement their existing allocations.

Finally, both the industry and the Commission must wrestle with the challenge of implementing high quality nonlicensed systems which use technology rather than regulation to maintain order among PCS users. In addition, the inherent roaming nature of nonlicensed devices requires development of a mechanism to protect or move microwave users now operating in the 1910-1930 MHz band.

TIA believes examining these differences in the context of the Commission's and industry's goals for PCS is extremely useful in establishing final PCS rules. Also, as the regulatory and implementation issues for 900 MHz "Narrowband PCS" appear to be simpler than those at 1.8 GHz, the Commission and industry may be able to initiate those services which can be supported in the proposed 900 MHz allocation more

quickly. There are, however, technical changes to the proposal which TIA believes will allow licensees in the new 900 MHz bands to offer users higher quality, more economical services. The remaining sections of TIA's comments address specific recommendations for both the 1.8 GHz and 900 MHz bands.

II. STANDARDS HELP PROMOTE UNIVERSALITY AND COMPETITION

The ideal regulatory structure within which to ensure reasonably priced PCS subscriber units providing users universality would be to require all units to meet a single industry developed common air interface standard. Such a standard would also ensure that users maintain the ability to access service from different providers without changing subscriber units. Therefore, standards impact competition in the delivery of public wireless services, as well as in subscriber equipment.

One of the key contributing factors to the phenomenal growth of public services such as analog cellular is a standardized common air interface providing users almost universal roaming capabilities throughout the U.S and multiple equipment manufacturers in healthy competition with one another.

Development of one single mandatory PCS standard, however, is likely to deter flexibility in choosing differing technologies and at minimum could delay initiation of PCS service. Therefore, to reach the proper balance of universality, flexibility, and speed of deployment, TIA

recommends the Commission encourage industry efforts to develop a limited number of common air interface standards which provide for various technologies.

TIA believes an industry defined CAI or at least development of some limited number of standards is absolutely essential to provide public PCS service at the most competitive costs to the user. Without a CAI or at minimum, some limited number of common standards needed to accommodate multiple technologies, users will be denied the capability existing in today's cellular systems to roam from city to city and from system to system with the same handset. Hampering such roaming capability by avoiding the standards issue will be a significant deterrent to the competitive benefits the Commission desires as a key goal for PCS.

TIA encourages the Commission to rely on industry to develop the appropriate CAI or CAI's for PCS. Already, TIA in conjunction with T1, the technical committee of the Exchange Carrier Standards Association, and user associations such as Telocator and CTIA, are well underway in cooperating to define standards requirements for PCS. The industry is already convening a "Joint Experts" meeting to move the PCS standards process forward.

In addition, many of TIA's member manufacturers are also participating in technical industry groups such as the WIN Forum to develop etiquettes designed to allow devices of different manufacturers to coexist with one another in the 1910-1930 MHz band proposed for

non-licensed PCS.

These efforts of TIA and its member manufacturers are critical to developing the proper RF interface standards for both licensed and nonlicensed PCS. The Commission can greatly assist the development of PCS by ultimately recognizing and endorsing common air interface standard(s) developed by industry. A number of precedents exists today for taking such action. For example, the Commission recently incorporated into the rules ANSI C63 measurement procedures as the method to be used in measuring computing devices for compliance.

Type acceptance of cellular units requires adherence to industry developed standards or alternatively, approval under the flexibility rules added after cellular service matured. Even approval under the flexibility rules, however, requires subscriber unit designs which adhere to certain minimal standards concerning use of the designated control channels. Doing so ensures that implementation for new technologies such as Narrow-Amps, Time Division Multiple Access (TDMA) and Code Division Multiple Access (CDMA) can be accomplished without disrupting the 8 million U.S. subscribers of standardized analog cellular units. Avoiding such disruptions is critical to existing service providers as well as these 8 million subscribers provide an imbedded base of revenue to use in expanding systems and implementing new technology.

In particular, TIA believes compliance with industry developed etiquettes must be a prerequisite for FCC equipment approval of

nonlicensed PCS devices. If the Commission fails to require compliance to an industry developed etiquette, the promise of quality nonlicensed PCS service may never be realized. Requiring conformance to such an etiquette appears to be the only way to avoid the gradual transition of the 1910-1930 MHz spectrum to a "junk band" of little benefit to users.

Endorsing such industry developed standards and etiquettes as conditions for FCC equipment approval is extremely important for licensed PCS and absolutely essential for non-licensed PCS. Therefore, TIA urges the Commission to recognize officially industry developed PCS standards.

III. IMPACT OF ENCUMBERED SPECTRUM ON A PCS BANDPLAN

With the exception of the 3 MHz of 900 MHz band spectrum proposed for "Narrowband PCS", all of the spectrum proposed for PCS currently supports ongoing fixed microwave operations. Industry and Commission data show approximately 9000 microwave facilities in the 1850-1975 MHz band proposed by the Commission for PCS. In contrast, only a handful of UHF television stations previously occupied the 800-900 MHz band spectrum now used to support almost 30 million cellular, private land mobile, and paging users.

The Commission's recent decisions in the Emerging Technology proceeding make it essential that PCS operators find a way to at least initiate service in a shared environment of heavy microwave use. Over time, these operators must bear the significant expense of relocating

microwave systems to other bands. Further, as that decision established, such relocation will be almost totally on a voluntary negotiated basis.

While some provisions were made for "involuntary" relocation, public safety microwave systems are totally exempt from that process. Even for cases in which involuntary relocations are allowed, PCS providers face a substantial, expensive and rather lengthy process before the spectrum can be accessed on an exclusive basis. The Commission's decisions in the Emerging Technology proceeding necessitate PCS rules that enhance the potential to initiate service in the shared environment. Otherwise, the key goal of deploying PCS quickly will not be met.

Consistent with the goal to provide new competition in the provision of wireless services, TIA recommends the Commission provide each new entrant sufficient spectrum to enhance the potential for initiating service on a shared basis while pursuing relocation negotiations with microwave incumbents. Further, as microwave systems follow a 10 MHz channelization, it appears that negotiations would be simplified by granting each licensee spectrum blocks which are an integral multiple of 10 MHz.

Current microwave-to-microwave protection criteria substantially limit placement of first adjacent channel microwave systems in a given area. Therefore, providing PCS licensees blocks that encompass more than

one microwave channel may also enhance sharing capabilities. Such enhancements are extremely important for PCS systems designed to offer competitive vehicular as well as pedestrian service.

One viable option is to provide each such PCS licensee with paired 20 MHz blocks, totalling 40 MHz of spectrum. System operators providing primarily localized pedestrian coverage to supplement other vehicular offerings, however, may be able to initiate service with less spectrum.

The process of sharing with or relocating microwave users is even more challenging for manufacturers of nonlicensed PCS devices. Nonlicensed devices for the mass market inherently will roam from location to location. A device purchased in Washington may be used in Los Angeles, New York, or the Gulf area. Further, devices may be used on the upper floors of buildings as well as at street level. No regulatory control limiting area of operation exists. Implementing sufficient automatic technical mechanisms to ensure that no interference to microwave systems will occur from nonlicensed devices may be difficult, and in any case, could significantly raise the cost of nonlicensed PCS devices.

Unfortunately, for non-licensed devices no identified entity has responsibility to negotiate relocations with microwave users. TIA looks forward to reviewing the comments of its member companies and other industry players on developing a mechanism to address this issue.

IV. 900 MHZ NARROWBAND PCS

In its Notice, the Commission proposed to allocate the 901-902, 930-931, and 940-941 MHz bands for "Narrowband" PCS. The technical parameters proposed for these bands include power limits comparable to today's 900 MHz paging operations, i.e., a maximum of 1000 watts effective radiated power for regional/local systems or 3500 watts ERP for nationwide systems. Mobiles and portables would be limited to 7 watts ERP and must have a built-in capability to reduce power automatically to the minimum necessary for successful communications with the associated base station.

The rules, however, did not distinguish which band segments would support mobile/portable operation and which would support base station operations. Accordingly, it appears the Commission's Notice may have inadvertently proposed to mix low power mobiles/portables side-by-side with 3500 watt base stations.

TIA believes attempting to provide users quality narrowband PCS services under such conditions would be technically and economically inadvisable, if not impossible. Even if the technology existed to allow low powered portable devices to coexist successfully with adjacent channel 3500 watt base stations, subscriber unit cost, complexity, and size would be unacceptable to the user.

In addition, the 935-940 MHz band directly below the 940-941 MHz segment is already populated with portable and mobile private land mobile units. Placing 3500 watt base stations directly adjacent to that band would cause harmful interference to existing operations. In contrast, the 901-902 MHz and 930-931 MHz segments are adjacent to the 896-901 private land mobile base station and 929-930, 931-932 MHz paging bands, respectively. These segments of the proposed narrowband PCS allocation, therefore, would have adjacent neighbors who are less likely than mobiles/portables to be negatively impacted.

In view of the above, TIA recommends the 940-941 MHz band be limited to mobile/portable operations. TIA, however, does not object to offering operators the flexibility to employ both base or mobile/portable stations in the 901-902 and 930-931 MHz bands for time division duplex (TDD) operations, should such operations prove to be technically and economically viable.

IV. SUMMARY

TIA strongly supports the proposed allocation of 1.8 GHz and 900 MHz spectrum for PCS. These allocations, if finalized without delay, will serve the U.S. well in both domestic productivity and opportunities for export. TIA strongly urges the Commission to recognize the role industry developed PCS standards and etiquettes can play in meeting the goals of universality and competition. In addition, as the proposed 1.8 GHz spectrum is encumbered with significant fixed microwave usage, each PCS

licensee will need substantial allocations, perhaps as much as 40 MHz, to offer competitive vehicular and pedestrian service on a shared basis. Finally, TIA recommends the Commission designate the 940-941 MHz band for mobile/portable narrowband PCS devices only, as allowing 1000 or 3500 watt base stations in that band is likely to hamper development of cost effective PCS service and will cause interference to existing private land mobile operations in the 935-940 MHz band.